

PRELIMINARY BIOLOGICAL CONSTRAINTS ANALYSIS

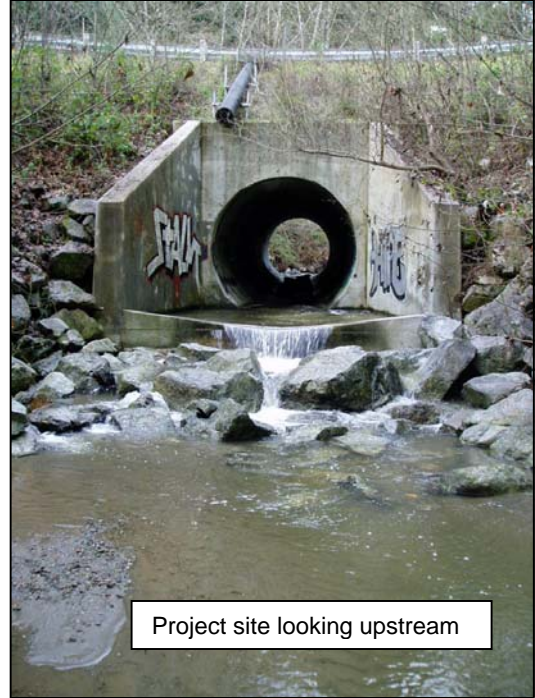
Site: Valencia Road P.M. 3.2 Culvert Retrofit

Creek or Water body: Valencia Creek

Watershed: Aptos Creek

Date of site visits: 14 December 2004 and 17 January 2005

Project Description: The Valencia Road P.M. 3.2 project is being done to retrofit an existing baffle and weir system within a steep (3.8%), 10' diameter Class 3 RCP on Valencia Creek, within the Aptos Creek Watershed. The project involves the demolition and removal of the existing baffle system within the culvert and placement of three rock weirs downstream to promote backwater conditions at the existing culvert outlet and apron feature. Upstream work will be limited only to temporary placement of the coffer dam and diversion pipe. Significant disturbance to upstream channel bed and banks is not anticipated.



Project site looking upstream

This project requires a complete stream diversion/bypass system with 2 coffer dams constructed upstream and downstream with approximately 200' of 18" HDPE pipe, clean gravel bags, visquine and possibly small submersible pumps to maintain clear bypass flows. Staging and concrete cleanout will be done on existing roadway surfaces, out of the riparian zone. The equipment that may be used includes an excavator, loader, and backhoe. Throughout the construction period, the stream will be diverted and in-stream activities will be limited to the dewatered reach.

Equipment access to the channel and culvert outlet will be done via a temporary access road from the existing roadway surface down the left bank, minimizing the loss of existing riparian trees. The equipment will work in the dewatered streambed for rock weir placement. Concrete will be poured within in the culvert to form the ramp baffles. Once the work is complete and the new concrete ramp baffles are sufficiently cured, the HDPE pipe will be removed and the stream will be allowed to run through the culvert baffle system. Concrete accelerants and surface sealants will be required to minimize the diversion period and limit potential concrete leachate contamination.



Project access road alignment on left bank

All disturbed areas will get seeded and revegetated with locally appropriate native species at the end of the project. The work to be done will be timed to coincide with the seasonal low flows in Valencia Creek, specifically July 1 through October 15. Revegetation may extend into winter, depending on site and weather conditions.

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Habitat Assessment

Valencia Creek is a perennial stream within the Aptos Creek watershed in Santa Cruz County. At the project location, the creek's substrate is generally dominated by silt and sand although gravel, cobble and boulder are also present. The stream channel averages 12-18 feet in width and is incised at the project site approximately 20 feet. Two small pools were present below the outlet that were only about 2 feet deep and filled with sediment. A pool with an undercut bank and woody debris was present about 40 feet downstream. Downstream channel conditions were dominated by large woody material and abundant fine sediments within the channel, instream bars and floodplain terraces. Numerous pools with abundant woody debris were present immediately upstream of the project site.

The primary wildlife habitats in the vicinity of the project area are riparian and second-growth redwood forest. Willows and alders are clustered on and near the work area around the outlet of the culvert. The under-story is dominated by California blackberry although some ivy and other invasive plants are present. Nearby surrounding lands are mostly rural and undeveloped, although a few scattered single-family residences are present. Topography in the area is hilly.



A review of the CNDDDB and other records reveals the presence at least four special-status vertebrates known within 5 miles of the project site including the federally-threatened California red-legged frog (*Rana draytonii*). Although a breeding site for the endangered Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) was discovered in 2004 near Aptos High School approximately 1.25 miles southeast of the site, it is situated near the edge of the subspecies' range and no habitat is present at the project site. Potential habitat is present for two species of special concern, the foothill yellow-legged frog (*Rana boylei*) and Pacific pond turtle (*Actinemys marmorata*). FIGURE 1.

Valencia Creek and the Aptos Creek watershed is known to support both steelhead and resident rainbow trout (*Oncorhynchus mykiss*) and may support a coho salmon (*Oncorhynchus kisutch*) fishery. Steelhead/rainbow trout have been planted periodically in Aptos Creek since 1913 when records indicate a planting of 33,000 fish which were split between Aptos Creek and Kings Creek in the upper San Lorenzo River watershed (Report of the Fish and Game Commission #23, 1912-1914). California Division of Fish and Game steelhead planting records specific to Aptos Creek exist from 1928 (7000 fish), 1929 (34,000 fish), 1930 (3,000 fish), 1932 (14,000 fish), 1933 (20,000 fish), 1934 (30,000 fish), 1935 (34,896 fish), 1936 (34,500 fish), 1937 (29,000 fish), 1938 (25,000 fish), and 1939 (60,000 fish). After 1940, stream-specific state hatchery records are not locally available.

The Aptos Creek watershed is believed to have historically supported Coho salmon. *Coho runs were last reported from Aptos Creek in 1973. Non-native coho were stocked in Aptos Creek, along with other coastal streams, by the Department of Fish and Game during the 1960's including a large plant in 1963 of 10,000 Alsea stock fish reared at Darrah Springs hatchery in Shasta County (Evans 1963) [From Hagar, 2003].* In March 2003 the Aptos Creek mainstem received a planting of over 5,700

coho smolts from the Monterey Bay Salmon and Trout Project. Three downstream culvert-related passage barriers on Valencia Creek, however, severely limit the likelihood of coho at the project site. FIGURE 2

One additional species of special concern that is rarely reported in the CNDDDB, the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), may also inhabit the project area. Preliminary reconnaissance, however, site not reveal any woodrat nests in the proposed impact area.

It may be necessary to remove some young willows and/or alder trees that provide potential habitat for nesting birds. As proposed, no redwood, douglas fir or oak are to be removed. All native birds are protected during the nesting season by the Federal Migratory Bird Treaty Act. Preconstruction surveys for nesting birds within the project impact area are suggested. Additional preventative measures, such as hanging reflective mylar ribbons in the project area alders, may deter nesting activity prior to vegetation clearing and project construction.

Wildlife Management Recommendations

Protocols to insure that no red-legged frogs are negatively affected have been developed for similar projects involving localized work areas in streams in Santa Cruz County (Appendix A). Two pre-construction surveys are suggested within two to four weeks of construction, either both in the daytime or one at night, which will also suffice to search for foothill yellow-legged frogs. The search should be performed at least ¼ mile up and downstream of the project site. Daytime visual searches may also be used to detect Pacific pond turtles.

A ground survey throughout the work area shall be performed for San Francisco woodrat nests. If woodrat nests are present, they shall either be avoided or individuals shall be live-trapped and released nearby outside the work area. In addition, efforts will be made to move the nest outside the work area to provide sticks for the woodrats to rebuild.

Prior to the start of the construction, a worker education seminar shall be delivered, that will address all the special-status species that may be present. Biological monitoring is recommended during hand-vegetation removal at the start of construction (see Appendix A), although daily monitoring may only be necessary if red-legged frogs, yellow-legged frogs, Pacific pond turtles or other special-status species inhabit the work area.

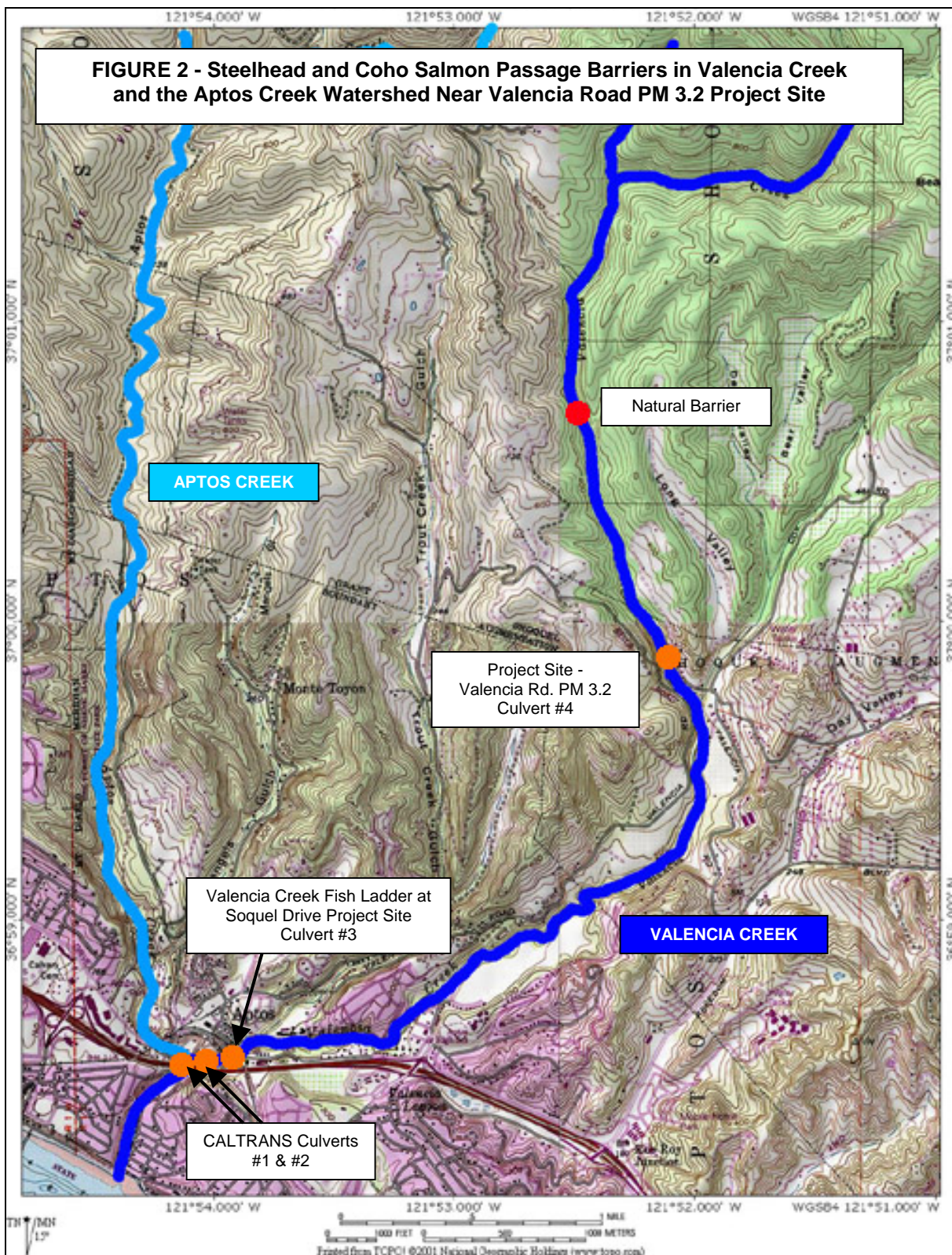
Prior to dewatering activities, all fish should be removed from the project area and relocated upstream to appropriate habitats by a qualified fisheries biologist. Based on channel conditions and the abundance of submerged wood, capture by backpack electroshocker is suggested. Consultation with NOAA Fisheries and CDFG is required.

Ideally work should not commence until mid-July or early August, to avoid affecting native birds during the nesting season. Conducting nesting surveys and implementing visual deterrence measures in May, June and early July may be sufficient to limit nesting in the few alders (<6) identified for removal for temporary site access.

SCLTS = Santa Cruz long-toed salamander
 CRLF = California red-legged frog
 FYLF = Foothill yellow legged-frog
 WPT = Western pond turtle/Pacific pond



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Protected Species of Concern:

California red-legged frog (CRLF)

- Presence of red-legged frog - The proposed project site is within the range of the California red-legged frog (red-legged frog) and potential foraging and sheltering habitat is present onsite (Jennings and Hayes 1994, Stebbins 2003).
- Valencia Creek does not provide breeding habitat for red-legged frog at the project site, primarily due to high flows during the species' breeding season. However, if an off-channel breeding pond is present in the area red-legged frogs may use the project site as "summer habitat." Red-legged frogs will cross a variety of habitats during the winter months to facilitate movements from non-breeding refugia to breeding sites (Bulger 2003). Juvenile red-legged frogs could occur on the site during dispersal movements away from breeding ponds in the late summer.
- If red-legged frogs occupy Valencia Creek, they are expected to make use of the surrounding upland habitats to forage. Based on recent radio-telemetry data, it appears that virtually all upland areas in proximity to occupied red-legged frog habitat could be used seasonally by red-legged frogs.
- Nearest documented population - Although there are no records within one mile of the project site, there are several records within five miles. The nearest breeding location for the red-legged frog is the Millsap Pond, which is situated approximately 2.75 miles to the southeast (Biosearch 2002). There is a historic record from 1963 of a red-legged frog that was photographed in a fish pond at 735 Cathedral Drive near Mangels Gulch, less than two miles west of the project site.
- Potential project impacts – possible take of individuals dispersing from other areas, over-summering in-stream and/or in moist vegetation during construction activities.
- Regulatory agency consultation - State Fish and Game Department, US Fish and Wildlife Service
- Suggested preconstruction survey protocol – two day and two night surveys within one week of construction.
- Avoidance or protection measures – prior to construction, hand removal of vegetation and monitoring of vegetation removal by biologist(s); worker education seminar.
- Suggested construction-period monitoring frequency – daily monitor prior to work each day; onsite monitor whenever heavy equipment in-stream.

Steelhead

- Presence of steelhead – Steelhead are likely present in the construction site. However, the three downstream box culverts are at least a partial passage impediments for spawning

steelhead. In 1981, prior to the massive disturbance of winter 1982, smolt densities in Valencia Creek downstream of Valencia Road were 17 fish per 100 feet of stream, based on sampling by Dr. Jerry Smith for Harvey and Stanley, Inc (1984). Hagar Environmental Sciences conducted visual surveys in summer 2002 for the Aptos Watershed Plan process and observed densities of 0.63 Y-O-Y per 100 feet of stream and 0.10 older trout per 100 feet of stream in the middle reaches of Valencia Creek.

- Nearest steelhead population – Valencia Creek, Aptos Creek
- Potential project impacts – Potential take of steelhead or rainbow trout at the site. Work in the stream during the smolting period may obstruct passage of steelhead smolts from March through July 1. Potential take of other native fish fauna. Potential sedimentation of the stream channel and increased turbidity to create water quality problems downstream for fishes. Preventing revegetation of project site to cumulatively increase water temperature. Toxic petro-chemical spills or cement entering the flowing water could be lethal to fish downstream.
- Regulatory agency consultation - State Fish and Game Department, National Marine Fisheries Service
- A pre-construction survey is unnecessary. Salmonids have been observed in at the project site in the past. There is no advantage to sampling the site prior to construction. It would be just as easy to sample as part of a relocation operation immediately before construction.
- Mitigation measures would include removal and relocation of all fish from the site, using electrofishing and block nets. After fish removal, construct coffer dams up and downstream of the site and run flow through culvert to avoid the project area. Dams should be made of washed gravel with visquine or sandbags that will be removed at the end. Water diversion should be done in one day during the daylight hours. Smolting steelhead migrate at night only. Use silt fencing to prevent sediment from entering the flowing channel. No heavy equipment in the flowing channel. No equipment should be left in the dry channel over night. Keep equipment in good working order. Vegetable oil based hydraulic fluid is preferred. Properly revegetate the bank or the top of bank with appropriate riparian trees. Use erosion control measures, including mulching all bare soil.
- Construction period from July 1 to October 15 at the latest. After the fish relocation, a fish monitor should be present during dam and culvert placement and removal. Any missed fish during the removal process can be removed during the dewatering phase.
- Fish removal, potential impacts, mitigation measures and monitoring would be the same for resident rainbow trout as for steelhead.

Coho Salmon

- Presence of Coho salmon – Coho are not likely present in the construction site due to three limiting factors: (1) three notable man-made passage barriers downstream in Valencia Creek, particularly the failed Valencia Creek fish ladder at the Soquel Drive crossing; (2) high levels of sedimentation and limited pool depth in downstream habitats; and (3) periodic, seasonal low flows.

- Nearest Coho salmon population – Aptos Creek?, Scotts Creek, Waddell Creek
- Coho smolts from Scotts Creek's 2002 brood were planted in Aptos Creek by the Monterey Bay Salmon and Trout Project in late March and the first week of April 2003. Due to the project's best Coho production ever and high numbers of natural production being found in Scotts and Gazos Creeks, the hatchery Coho smolts were divided up into groups by the joint NMFS & CDFG Recovery teams to begin reintroduction into the two best candidate local streams that year, Pescadero Creek in San Mateo County and Aptos Creek in Santa Cruz County. The total 2002 Brood year Coho production of 31,379 fish were planted as follows:
 - Scotts Creek 6,664
 - Waddell Creek 6,120
 - Aptos Creek 7,140
 - Pescadero Creek 11,475

(Source Monterey Bay Salmon and Trout Project 2003 Newsletter)

- Potential project impacts – Low likelihood of potential take of coho salmon at the site due to downstream barriers. If present in upper Valencia Creek, work in the stream during the smolting period may obstruct passage of coho smolts from March through July 1. Potential sedimentation of the stream channel and increased turbidity to create water quality problems downstream for fishes. Preventing revegetation of project site to cumulatively increase water temperature. Toxic petro-chemical spills or cement entering the flowing water could be lethal to fish downstream.
- Regulatory agency consultation - State Fish and Game Department, National Marine Fisheries Service
- A pre-construction survey is unnecessary. Salmonids (steelhead and/or resident rainbow trout) have been observed in at the project site in the past. There is no advantage to sampling the site an extended period prior to construction. Sampling and identification of fish fauna will be conducted as part of any relocation operation immediately before construction.
- Mitigation measures would include removal and relocation of all fish from the site, using electrofishing and block nets. After fish removal, construct coffer dams up and downstream of the site and run flow through culvert to avoid the project area. Dams should be made of washed gravel with visquine or sandbags that will be removed at the end. Water diversion should be done in one day during the daylight hours. Use silt fencing and straw wattles to prevent sediment from entering the flowing channel. No heavy equipment in the flowing channel. No equipment should be left in the dewatered channel over night. Keep equipment in good working order. Vegetable oil based hydraulic fluid is preferred. Properly revegetate the bank or the top of bank with appropriate riparian trees. Use erosion control measures, including mulching all bare soil.
- Construction period from July 1 to October 15 at the latest. After the fish relocation, a fish monitor should be present during dam and culvert placement and removal. Any missed fish during the removal process can be removed during the dewatering phase by dipnet and transported upstream by bucket.

- Fish removal, potential impacts, mitigation measures and monitoring would be the same for coho salmon as for resident rainbow trout or steelhead.

Pacific pond turtle

- Presence of pond turtles - Potential habitat for Pacific pond turtles (formerly western pond turtles) is present in Valencia Creek. However, the nearby uplands lack the open, grassy areas that are necessary for nesting. Pacific pond turtles can be difficult to detect in riparian systems without focused surveys that usually involve trapping and/or snorkeling.
- Nearest pond turtle population - The only record within 5 miles is from Soquel Creek at Mill Pond, which is located approximately 4.9 miles to the northwest. The lack of records may be due to a low survey effort using appropriate methods.
- Regulatory agency consultation - State Fish and Game Department.
- If found during the CRLF surveys, turtles may need to be captured and relocated to the nearest appropriate habitat.

Foothill Yellow Legged Frog (FYF)

- Presence of foothill yellow legged frog - Potential habitat for foothill yellow-legged frogs is present in Valencia Creek. Although portions of the drainage may be too shady to support the species, other areas including the project site may be appropriate. The species inhabits much of the length of Soquel Creek nearly five miles to the west, foothill yellow-legged frogs were observed in 1998 in Aptos Creek about 3.2 miles north.
- The lack of records may be due to a low survey effort during the optimal periods to detect the species.
- Regulatory agency consultation - State Fish and Game Department
- If present, monitors should capture and move to nearest appropriate habitat outside work area. Daily monitoring recommended, if present.

Raptor nesting

- A variety of raptors including sharp-shinned and Cooper's hawks, both species of special concern, may nest in the adjacent mixed conifer-hardwood forest.
- Low likelihood of raptor nesting within project impact area due to small stature of alders to be removed.
- Pre-construction breeding surveys (2 visits) may be necessary. If found, construction may have to be delayed until after the breeding season, unless an adequate setback can be applied.

Citations

- Biosearch Wildlife Surveys. 2001. Santa Cruz long-toed salamander study, Millsap Pond, Santa Cruz County. Prepared for: P. Cerruti and the U. S. Fish and Wildlife Service (Ventura). Dated 20 June.
- Bulger, J. B., N. J. Scott Jr., and R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-legged Frogs *Rana aurora draytonii* in Coastal Forests and Grasslands. Biological Conservation 110: 85-95.
- Jennings, M. R. and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game Contract # 8023. Inland Fisheries Division, Rancho Cordova, California.
- Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians, Third Edition, Revised. Houghton Mifflin Co., Boston, MA.
- Hagar Environmental Science. 2003. Aptos Creek Watershed Fisheries Habitat Assessment Technical Memorandum. Prepared for Coastal Watershed Council.
- Harvey & Stanley Associates, Inc. 1984. Fish Habitat Assessments for Santa Cruz County Streams. Prepared for Santa Cruz County Planning Department, Alviso, California.
- Santa Cruz County. February 2004. Steelhead and Coho Salmon Distribution Map.

Appendix A. California Red-legged Frog
Monitoring and Translocation Plan,
Valencia Creek Culvert Retrofit Project Site

Pre-construction Survey. Between two and four weeks prior to initiation of any ground disturbance associated with the project, a pre-construction survey will be performed onsite. If the construction start date is delayed, it may be necessary to repeat the survey. At a minimum, methods will consist of two daytime or one daytime and one nighttime survey of the project site and adjacent aquatic habitat along Valencia Creek. A ½ mile transect will be examined by following Valencia Creek ¼ mile (1320 feet) upstream and ¼ mile downstream of the project site. The stream channel will be surveyed by walking in-stream or along the banks and searching for frogs visually and with binoculars. At night, a hand-held headlamp will be used to search for eye-shine and the shape of frogs. During pre-construction surveys, potential relocation sites will be identified (see below). All amphibians observed will be recorded or reported as “unidentified” if positive identification is not possible. If red-legged frogs are observed, they will be photographed, if possible, and their locations mapped relative to the construction site. No red-legged frogs will be handled or captured at this time. A letter report will be submitted to the County and USFWS two weeks prior to the start of construction along with a request to USFWS for guidance. If red-legged frogs are observed, the letter-report will include a map of their location.

Worker Education Program. Prior to the start of construction, a worker education program will be presented at the project site by a qualified biologist. Onsite construction managers must attend and are responsible for passing on the information to workers. If the onsite manager changes during the construction project, then another seminar must be delivered. At every seminar, written material will be distributed. It will be the onsite manager’s responsibility to ensure that all construction personnel and subcontractors receive a copy of the education program. All personnel must sign and date their program, keep a copy onsite and submit a signed form to document the training they received. The education program will include a description of the red-legged frog and its habitat, the general provisions of the Endangered Species Act, the necessity of adhering to the Act to avoid penalty, measures implemented to avoid affecting red-legged frog specific to the project and the work boundaries of the project. A photograph of the red-legged frog will also be provided.

Vegetation Removal. The project will commence by having a qualified biologist monitor the removal of any vegetation necessary to perform the construction project. At the same time, the limits of work area will be identified in the field. To reduce disturbance to adjacent habitat, high visibility orange fencing and steel t-posts (or similar material) will be used to define the perimeter of all work and staging areas.

Immediately prior to beginning vegetation removal, a qualified biologist will survey the work area for red-legged frogs. Vegetation will then be removed using hand-tools (chain saws okay) to a height of approximately 6 inches with the biologist present. Work may be stopped so the biologist can conduct additional visual surveys, before vegetation is removed to near ground level such that there is no cover within the work area for red-legged frogs. If red-legged frogs are observed in the work area, they shall be moved to the nearest appropriate pool habitat upstream (see below).

Construction Monitoring. If no red-legged frogs are observed during the pre-construction survey and vegetation removal procedure, daily visits to survey for red-legged frogs by a biological monitor will not be performed. A biological monitor may still need to visit the site periodically to ensure that all

other conditions of the Programmatic Endangered Species Act Consultation are followed. If, during the course of the construction project, red-legged frogs are identified or reported nearby the site, daily surveys may be necessary.

As defined in the Programmatic Endangered Species Act Consultation (USFWS 1999), a qualified biologist is an individual approved by the USFWS to capture and translocate red-legged frogs, whereas a biological monitor is an individual that has been trained to identify red-legged frogs but is not permitted to handle them. A biological monitor may therefore conduct surveys for red-legged frogs during the construction project but must contact a qualified biologist if it is necessary to move red-legged frogs. In addition to surveying for red-legged frogs, biological monitors perform several other duties intended to minimize disturbance to the work area, riparian corridor and adjacent habitat (USFWS 1999). Since it may be necessary to contact a qualified biologist immediately, communication between the monitor and biologist is essential.

If red-legged frogs are observed during the pre-construction survey, a biological monitor will survey the site daily prior to the start of construction. Since red-legged frog movements typically occur at night (Rathbun and Schneider 2001), it is unlikely that a red-legged frog would move into an active construction site during the day. Unless approved by the monitor, construction shall not begin until one hour after dawn, to provide enough time to search the entire construction site including lay-down and equipment storage areas. A buffer of between 100 and 300 feet upstream and downstream will also be surveyed each day. The biological monitor has the authority to delay or stop construction if a red-legged frog is in harm's way. After surveying the site, the biological monitor shall meet with the onsite construction manager to discuss any observations.

Translocation. If a red-legged frog is found in the work area, efforts will be made to avoid it. The biological monitor shall meet with the construction manager to discuss the day's activities to determine if the frog is in harm's way. It may be necessary to observe the red-legged frog throughout the day. If it is necessary to translocate the individual, a qualified biologist will capture the animal and move it to nearby suitable pool habitat upstream in Valencia Creek. Rathbun and Schneider (2001) report that during wet, winter months translocated red-legged frogs typically exhibit homing ability and return to their capture site within a few days. Therefore, efforts will be made to move the frog as short a distance as possible, ideally within approximately 300 feet. The length (snout-urostyle) of the animal will be recorded. Subsequent monitoring will be performed with the assumption that translocated individuals may return. The translocation site and stream corridor between the translocation site and construction site will be included as part of the daily construction monitoring survey. The translocation site will be mapped relative to the work area. The USFWS and the County will be informed that a frog was found and moved.

PHOTOS: Valencia Creek Road P.M. 3.2 Culvert Retrofit Project Site



LEFT: Valencia Creek PM 3.2 culvert outlet apron will be left structurally unchanged, but will be backwatered by proposed downstream rock weirs.



RIGHT: Existing Valencia Creek PM 3.2 culvert baffles will be removed and replaced with full-span ramp baffles.



LEFT: Valencia Creek in the project vicinity is dominated by mobile sand and is characterized by abundant large woody material, including old growth and second growth redwood stumps and logs.



RIGHT: Existing logjam approximately 600' downstream of site creates notable backwater deposition of sand.



LEFT: Valencia Creek upstream of the project site is also characterized by abundant large woody material and the riparian canopy is dominated by even-age, post-1982 storm alders.

RIGHT: Submerged redwood stumps and the existing culvert headwall upstream of project site create a stable grade and channel form.



Valencia Creek Fish Ladder (Culvert #3) at Soquel Drive is the largest passage barrier in the system and limits salmonid access to more than 2.75 miles of Valencia Creek downstream of the Valencia Road PM 3.2 project site.

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